



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,221	12/29/2000	Sung-Chun Jun	P 275721 P00H9026/US/ky	6597

909 7590 01/05/2004

PILLSBURY WINTHROP, LLP  
P.O. BOX 10500  
MCLEAN, VA 22102

EXAMINER

TUCKER, WESLEY J

ART UNIT	PAPER NUMBER
----------	--------------

2623

DATE MAILED: 01/05/2004

7

- Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/750,221

Applicant(s)

JUN, SUNG-CHUN

Examiner

Wes Tucker

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2623

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claims 1-10 the interpreted meaning of "coefficient" is inconsistent with the specification. In the specification the word coefficient is not used. In claim 1, the phrase "coefficient representing a maximum value" is interpreted to mean that the first and second coefficients are actually equal to the maximum and minimum values. However as interpreted from the specification, it appears that the factors of 1.1 and 0.9, which are believed to be the coefficients because of claims 5 and 10 are actually multiplied by the maximum and minimum values instead of actually representing the maximum and minimum values. The claimed meaning of coefficient is unclear and therefore renders claims 1-10 indefinite.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-10 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent

6,453,068 to Li.

Art Unit: 2623

With regard to claim 1, Li discloses an apparatus, for use with an image sensor having an array of pixels each of which outputs digital image data corresponding to one or more characteristics of light incident thereon (column 1, lines 55-62), for detecting and compensating for a defective pixel, which comprises means for detecting and determining whether a target pixel is defective based on a check condition, the condition being that image data of the target pixel has a value larger than a first coefficient representing a maximum value of image data of adjacent normal pixels or a value smaller than a second coefficient representing a minimum value of image data of adjacent normal pixels (column 2, lines 5-15).

Li further discloses means for compensating the image data of a target pixel deemed to be defective and outputting compensated image data, in response to the image data of the target pixel, the maximum value of image data of adjacent normal pixels, the minimum value of image data of the adjacent normal pixels, a defective pixel determination signal representing that the target pixel is defective, and a minimum or maximum range violation signals representing that the image data of the defective pixel violates the maximum or minimum ranges in the check condition, which are provided thereto from the defective pixel detection means (column 2, lines 10-15). Here once it is determined whether the pixel value is above the maximum or below the minimum value a signal is received indicating an overshoot reduction coefficient for reducing or increasing the pixel value accordingly. The range violation signal is the reduction coefficient.

With regard to claim 2, Li discloses an apparatus according to claim 1, wherein the defective pixel detection means includes a first line memory for storing therein the image data fed thereto from the unit pixel on a line-by-line basis (column 4, lines 53-56). Here a scanner, which scans line by line, is disclosed along with a storage device or memory.

Art Unit: 2623

Li further discloses a second line memory for receiving the image data stored in the first line memory and storing the same therein (column 5, lines 7-11). Here the digital image signals are transferred from the scanner to the image-processing unit for processing which inherently contains a second line memory.

Li further discloses a two-dimensional space Filter (column 6, lines 1-5) for receiving the image data fed thereto from the second line memory, the image data inputted thereto from the first line memory and the image data provided thereto from the unit pixel, and storing each of the image data in a first set of lines, a second set of lines, and a third set of lines, respectively. A third set of lines stored in memory would be inherent for storing the image pixel data once the pixel data has been modified.

Li further discloses a defective pixel determination means for receiving the image data provided thereto from the space filter, determining whether or not image data of a target pixel is defective based on the check condition (column 2, lines 5-15), and outputting a defective pixel determination signal, a minimum range violation signal and a maximum range violation signal according to determined results (column 2, lines 10-15), wherein the defective pixel determination signal represents that the image data of the target pixel has a value larger than the first coefficient of the maximum value of image data of adjacent normal pixels in the space filter (column 6, lines 29-35), or a value smaller than the second coefficient of the minimum value of image data of adjacent normal pixels in the space filter (column 6, lines 44-50), the maximum range violation signal representing that the image data of the target pixel has a value larger than the first coefficient; and the minimum range violation signal representing that the image data of the target pixel has a value smaller than the second coefficient (column 2, lines 10-15). Here once it is determined whether the pixel value is above the maximum or below the minimum value a signal is received indicating an overshoot reduction coefficient for reducing or increasing the pixel value accordingly.

With regard to claim 3, Li discloses an apparatus according to claim 2, wherein the defective pixel compensation means includes means for combining the minimum range violation signal and the maximum range violation signal provided thereto from the defective pixel detection means (column 2, lines 7-14). Here an input overshoot reduction is received which is either a negative or a positive value depending on whether the pixel value was above or below the designated threshold. So this is effectively giving one range violation signal just with a positive or negative sign indicator.

Li further discloses a first selection means for selectively outputting the minimum image data or the maximum image data in response to output from the combining means (column 2, lines 5-14). The overshoot coefficient is output depending on the known local maximum or minimum values.

And a second selection means for selecting one of the output signal from the first selection means and the image data of the target pixel, in response to the defective pixel determination signal from the defective pixel determination means, and outputting the same as the compensated image data (column 2, lines 15-25). Here the pixel value is adjusted according to whether the pixel value is above a maximum or below a minimum value in response to determining if the pixel is defective.

Li further discloses the condition that if the image data of the target pixel has a value larger than the first coefficient of the maximum image data and is determined as the defective pixel, the maximum image data is outputted as the compensated image data; and if the image data of the target pixel has a value smaller than the second coefficient of the minimum image data and is determined as the defective pixel, the minimum image data is outputted as the compensated image data (column 2, lines 43-46 and column 7, lines 30-35 and column 9, lines 21-25). Here the method for outputting compensated image data is disclosed using an overshoot attenuation coefficient that can be changed according to the level of control desired. Factors of 0.25, 0.5, and 0.75 are all mentioned as attenuating the overshoot amount by 25%, 50%, and 75% respectively compensating the range

Art Unit: 2623

violation degrees by these amounts of the actual range violation. The factor of 1.0 would be used to bring a positive overshoot amount to the maximum threshold value to be output or a negative overshoot amount to the minimum threshold value to be output.

With regard to claim 4, Li discloses an apparatus according to claim 3, wherein the first and the second coefficients are selected based on process characteristics of the image sensor (column 2, lines 5-7). The first and second coefficients represent maximum and minimum values of adjacent pixels in the image. It is inherent that they are selected based on process characteristics of the image sensor. Whatever the image sensor senses will be used as the image data used to determine the minimum and maximum values of the pixels surrounding a target pixel.

With regard to claim 5, Li discloses an apparatus according to claim 3, wherein the first and the second coefficients are 1.1 and 0.9, respectively (column 2, lines 5-10). Here coefficients are interpreted as threshold values as described in the claims above and with the specification. It is understood from the reference of Li that maximum and minimum values can be assigned as appropriate and as discussed in claim 3, the minimum and maximum values and the corresponding overshoot coefficients can be assigned for any number of percentage values.

With regard to claim 6, the discussion of claim 1 applies. Claim 1 and 6 disclose all of the same elements. The only difference is that claim 6 claims circuits instead of means. Li discloses the use of a dedicated circuit or any other suitable electronic circuit means (column 5, lines 13-16).

With regard to claims 7-10, the discussions for claims 2-5 apply.


Art Unit: 2623

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wes Tucker whose telephone number is 703-305-6700. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Wes Tucker  
12-15-2003

  
AMELIA M. AU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600